CLAIM AMENDMENTS:

1. (Currently amended) An organometallic complex of the formula

$$[(D_o)_n ML_x]_k$$

where M is selected from the group consisting of Cu, Ag and Au;

- Do is selected from the group consisting of ethers, phosphines, olefins, sulfides, pyridines, carbonyl, hydroxyl, cyclopentadiene, benzene derivatives, allyls, alkyls, amines, polyamines, aniline derivatives, cyclooctadiene and combinations thereof;
- n is an integer having a value from 0 to 4;
- k is an integer having a value from 1 to 4;
- x is an integer having a value from 1 to 4; and
- L is an amidinate ligand of the formula

$$R^1-N - C(R^2) - N-R^3$$

where R^1 , R^2 and R^3 are selected from the group consisting of alkyls, allyls, aryls, heteroaryls, hydrogen, non-metals and metalloids excluding trimethylsilyl; and where R^1 , R^2 and R^3 are different or the same.

- 2. (Original) The organometallic complex of claim 1 wherein R¹ and R³ are the same and are selected from the group consisting of ¹Bu and ¹Pr.
- 3. (Currently amended) An organometallic complex of the formula

$$H_nML_x$$

where M is selected from the group consisting of Cu, Ag and Au;

where n and x are integers and $n + x \le 7$;

where L is an amidinate ligand of the formula

$$R^1$$
-N \longrightarrow $C(R^2) \longrightarrow N-R^3$

where R^1 , R^2 and R^3 are selected from the group consisting of alkyls, allyls, aryls, heteroaryls, hydrogen, non-metals and metalloids <u>excluding trimethylsilyl</u>; and where R^1 , R^2 and R^3 are different or the same.

4. (Original) The organometallic complex of claim 3 wherein R¹ and R³ are the same and are selected from the group consisting of ^tBu and ⁱPr.

Claims 5-8 (Cancelled)

- 9. (Withdrawn) A method for depositing a metal or a metal compound including the steps of:
 - i) heating a substrate onto which deposition of said metal is to occur, said substrate being located in a deposition chamber;
 - ii) producing a vapor of a precursor of the formula

$$[(D_o)_n ML_x]_k$$

where M is selected from the group consisting of Cu, Ag and Au;

- Do is selected from the group consisting of ethers, phosphines, olefins, sulfides, pyridines, carbonyl, hydroxyl, cyclopentadiene, benzene derivatives, allyls, alkyls, amines, polyamines, aniline derivatives, cyclooctadiene and combinations thereof;
- n is an integer having a value from 0 to 4;
- k is an integer having a value from 1 to 4;
- x is an integer having a value from 1 to 4; and
- L is an amidinate ligand of the formula

$$R^1$$
- N --- $C(R^2)$ --- N - R^3

where R^1 , R^2 and R^3 are selected from the group consisting of alkyls, allyls, aryls, heteroaryls, hydrogen, non-metals and metalloids; and where R^1 , R^2 and R^3 are different or the same,

in the chamber in the vicinity of the substrate; and

- iii) decomposing the vapor to deposit the metal on the substrate.
- 10. (Withdrawn) A method for depositing a metal or a metal compound including the steps of:
 - heating a substrate onto which deposition of said metal is to occur, said substrate being located in a deposition chamber;
 - ii) producing a vapor of a precursor of the formula

$$H_nML_x$$

where M is selected from the group consisting of Cu, Ag and Au; where n and x are integers and $n + x \le 7$; where L is an amidinate ligand of the formula

$$R^1-N --- C(R^2) --- N-R^3$$

where R^1 , R^2 and R^3 are selected from the group consisting of alkyls, allyls, aryls, heteroaryls, hydrogen, non-metals and metalloids; and where R^1 , R^2 and R^3 are different or the same, in the chamber in the vicinity of the substrate; and

iii) decomposing the vapor to deposit the metal on the substrate.

Claims 11-21 (Cancelled)

- 22. (Withdrawn) The method of claim 9 wherein the metal compound is selected from a group consisting of a metal oxide, a metal sulfide, a metal boride, a metal silicide, a metal nitride, a metal carbide, a metal phosphide, a metal arsenide, a metal selenide, and a metal telluride.
- 23. (Withdrawn) The method of claim 10 wherein the metal compound is selected from the group consisting of a metal oxide, a metal sulfide, a metal boride, a metal silicide, a metal nitride, a metal carbide, a metal phosphide, a metal arsenide, a metal selenide, and a metal telluride.
- 24. (Withdrawn) A method for the deposition of the metal M onto a substrate comprising subjecting an organometallic complex according to claim 4 and said substrate to heat, light, ultrasound, radiation, high energy particles, reactive gases, or combinations thereof, under conditions suitable for said deposition to occur and where said metal M is Cu, Ag or Au.
- 25. (Withdrawn) A method for the deposition of the metal M onto a substrate comprising subjecting an organometallic complex according to claim 1 and said substrate to heat, light, ultrasound, radiation, high energy particles, reactive gases, or combinations thereof, under conditions suitable for said deposition to occur and where said metal M is Cu, Ag or Au.
- 26. (Withdrawn) A method for the deposition of the metal M onto a substrate comprising subjecting an organometallic complex according to claim 3 and said substrate to heat, light, ultrasound, radiation, high energy particles, reactive gases, or combinations thereof, under conditions suitable for said deposition to occur and where said metal M is Cu, Ag or Au.

- 27. (Withdrawn) The method as claimed in claim 25 wherein the deposition process is chemical vapor deposition or chemical vapor deposition coupled with a physical deposition technique.
- 28. (Withdrawn) The method as claimed in claim 26 wherein the deposition process is chemical vapor deposition or chemical vapor deposition coupled with a physical deposition technique.
- 29. (Withdrawn) A method for the deposition of metal oxides of the metal M onto a substrate comprising subjecting an organometallic complex according to claim 1 and said substrate to heat, light, ultrasound, radiation, high energy particles, reactive gases, or combinations thereof, in the presence of oxygen or a chemical source of oxygen under conditions suitable for said deposition to occur and where said metal M is Cu, Ag or Au.
- 30. (Withdrawn) A method for the deposition of metal oxides of the metal M onto a substrate comprising subjecting an organometallic complex according to claim 3 and said substrate to heat, light, ultrasound, radiation, high energy particles, reactive gases, or combinations thereof, in the presence of oxygen or a chemical source of oxygen under conditions suitable for said deposition to occur and where said metal M is Cu, Ag or Au.
- 31. (Withdrawn) A method for the deposition of metal sulfides of the metal M onto a substrate comprising subjecting an organometallic complex according to claim 1 and said substrate to heat, light, ultrasound, radiation, high energy particles, reactive gases, or combinations thereof, in the presence of sulfur or a chemical source of sulfur under conditions suitable for said deposition to occur and where said metal is Cu, Ag or Au.
- 32. (Withdrawn) A method for the deposition of metal sulfides of the metal M onto a substrate comprising subjecting an organometallic complex according to claim 3 and said substrate to heat, light, ultrasound, radiation, high energy particles, reactive gases, or combinations thereof, in the presence of sulfur or a chemical source of sulfur under conditions suitable for said deposition to occur and where said metal is Cu, Ag or Au.
- 33. (Withdrawn) A method for the deposition of metal borides of the metal M onto a substrate comprising subjecting an organometallic complex according to claim 1 and said

substrate to heat, light, ultrasound, radiation, high energy particles, reactive gases, or combinations thereof, in the presence of boron or a chemical source of boron under conditions suitable for said deposition to occur and where said metal is Cu, Ag or Au.

- 34. (Withdrawn) A method for the deposition of metal borides of the metal M onto a substrate comprising subjecting an organometallic complex according to claim 3 and said substrate to heat, light, ultrasound, radiation, high energy particles, reactive gases, or combinations thereof, in the presence of boron or a chemical source of boron under conditions suitable for said deposition to occur and where said metal is Cu, Ag or Au.
- 35. (Withdrawn) A method for the deposition of metal silicides of the metal M onto a substrate comprising subjecting an organometallic complex according to claim 1 and said substrate to heat, light, ultrasound, radiation, high energy particles, reactive gases, or combinations thereof, in the presence of silicon or a chemical source of silicon under conditions suitable for said deposition to occur and where said metal M is Cu, Ag or Au.
- 36. (Withdrawn) A method for the deposition of metal silicides of the metal M onto a substrate comprising subjecting an organometallic complex according to claim 3 and said substrate to heat, light, ultrasound, radiation, high energy particles, reactive gases, or combinations thereof, in the presence of silicon or a chemical source of silicon under conditions suitable for said deposition to occur and where said metal M is Cu, Ag or Au.
- 37. (Withdrawn) A method for the deposition of metal nitrides of the metal M onto a substrate comprising subjecting an organometallic complex according to claim 1 and said substrate to heat, light, ultrasound, radiation, high energy particles, reactive gases, or combinations thereof, in the presence of ammonia or a chemical source of nitrogen under conditions suitable for said deposition to occur and where said metal M is Cu, Ag or Au.
- 38. (Withdrawn) A method for the deposition of metal nitrides of the metal M onto a substrate comprising subjecting an organometallic complex according to claim 3 and said substrate to heat, light, ultrasound, radiation, high energy particles, reactive gases, or combinations thereof, in the presence of ammonia or a chemical source of nitrogen under conditions suitable for said deposition to occur and where said metal M is Cu, Ag or Au.

- 39. (Withdrawn) A method for the deposition of metal carbides of the metal M onto a substrate comprising subjecting an organometallic complex according to claim 1 and said substrate to heat, light, ultrasound, radiation, high energy particles, reactive gases, or combinations thereof, in the presence of a chemical source of carbon under conditions suitable for said deposition to occur and where said metal M is Cu, Ag or Au.
- 40. (Withdrawn) A method for the deposition of metal carbides of the metal M onto a substrate comprising subjecting an organometallic complex according to claim 3 and said substrate to heat, light, ultrasound, radiation, high energy particles, reactive gases, or combinations thereof, in the presence of a chemical source of carbon under conditions suitable for said deposition to occur and where said metal M is Cu, Ag or Au.
- 41. (Withdrawn) A method for the deposition of metal phosphides of the metal M onto a substrate comprising subjecting an organometallic complex according to claim 1 and said substrate to heat, light, ultrasound, radiation, high energy particles, reactive gases, or combinations thereof, in the presence of phosphine or a chemical source of phosphorus under conditions suitable for said deposition to occur and where said metal M is Cu, Ag or Au.
- 44. (Withdrawn) A method for the deposition of metal phosphides of the metal M onto a substrate comprising subjecting an organometallic complex according to claim 3 and said substrate to heat, light, ultrasound, radiation, high energy particles, reactive gases, or combinations thereof, in the presence of phosphine or a chemical source of phosphorus under conditions suitable for said deposition to occur and where said metal M is Cu, Ag or Au.
- 43. (Withdrawn) A method for the deposition of metal arsenides of the metal M onto a substrate comprising subjecting an organometallic complex according to claim 1 and said substrate to heat, light, ultrasound, radiation, high energy particles, reactive gases, or combinations thereof, in the presence of arsine or a chemical source of arsenic under conditions suitable for said deposition to occur and where said metal M is Cu, Ag or Au.
- 44. (Withdrawn) A method for the deposition of metal arsenides of the metal M onto a substrate comprising subjecting an organometallic complex according to claim 3 and said substrate to heat, light, ultrasound, radiation, high energy particles, reactive gases, or

combinations thereof, in the presence of arsine or a chemical source of arsenic under conditions suitable for said deposition to occur and where said metal M is Cu, Ag or Au.

- 45. (Withdrawn) A method for the deposition of metal selenides of the metal M onto a substrate comprising subjecting an organometallic complex according to claim 1 and said substrate to heat, light, ultrasound, radiation, high energy particles, reactive gases, or combinations thereof, in the presence of hydrogen selenide or a chemical source of selenium under conditions suitable for said deposition to occur and where said metal M is Cu, Ag or Au.
- 46. (Withdrawn) A method for the deposition of metal selenides of the metal M onto a substrate comprising subjecting an organometallic complex according to claim 3 and said substrate to heat, light, ultrasound, radiation, high energy particles, reactive gases, or combinations thereof, in the presence of hydrogen selenide or a chemical source of selenium under conditions suitable for said deposition to occur and where said metal M is Cu, Ag or Au.
- 47. (Withdrawn) A method for the deposition of metal tellurides of the metal M onto a substrate comprising subjecting an organometallic complex according to claim 1 and said substrate to heat, light, ultrasound, radiation, high energy particles, reactive gases, or combinations thereof, in the presence of hydrogen telluride or a chemical source of tellurium under conditions suitable for said deposition to occur and where said metal M is Cu, Ag or Au.
- 48. (Withdrawn) A method for the deposition of metal tellurides of the metal M onto a substrate comprising subjecting an organometallic complex according to claim 3 and said substrate to heat, light, ultrasound, radiation, high energy particles, reactive gases, or combinations thereof, in the presence of hydrogen telluride or a chemical source of tellurium under conditions suitable for said deposition to occur and where said metal M is Cu, Ag or Au.
- 49. (Withdrawn) A method for producing an alloy of two or more metals comprising subjecting an organometallic complex according to claim 1 and a substrate to heat, light, ultrasound, radiation, high energy particles, reactive gases, or combinations thereof, in order

to deposit the metals M of each of said organometallic complexes onto said substrate, wherein at least two of said two or more organometallic complexes comprise different metals M.

50. (Withdrawn) A method for producing an alloy of two or more metals comprising subjecting an organometallic complex according to claim 3 and a substrate to heat, light, ultrasound, radiation, high energy particles, reactive gases, or combinations thereof, in order to deposit the metals M of each of said organometallic complexes onto said substrate, wherein at least two of said two or more organometallic complexes comprise different metals M.